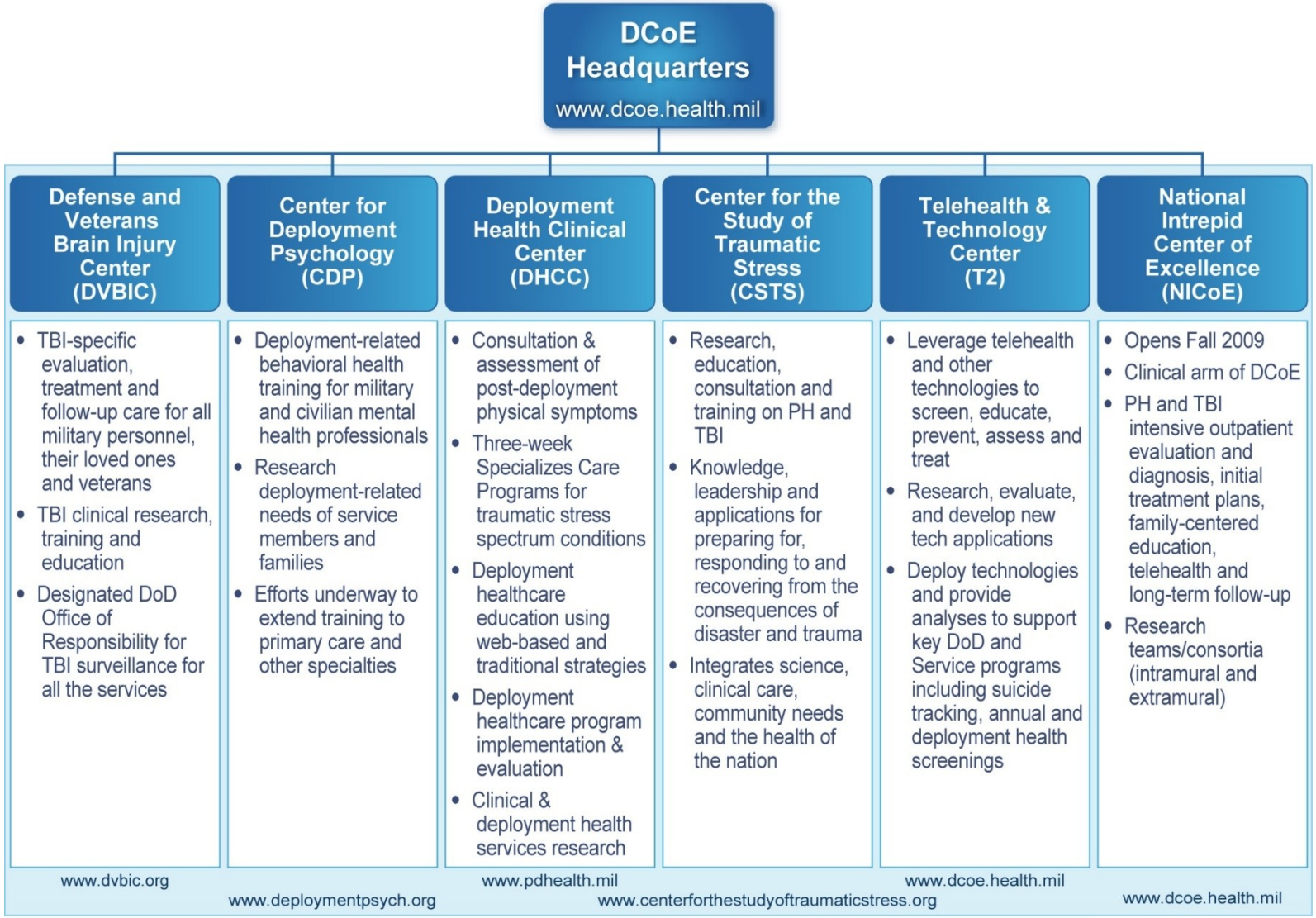
Advancing Care for Intrepid Fallen Heroes

COSC Conference - San Diego

20 May 2010

DEFENSE CENTERS OF EXCELLENCE
For Psychological Health & Traumatic Brain Injury

“Center of Centers”


DCoE Headquarters
www.dcoe.health.mil
Defense and Veterans Brain Injury Center (DVBIC)
• TBI-specific evaluation, treatment and follow-up care for all military personnel, their loved ones and veterans
• TBI clinical research, training and education
• Designated DoD Office of Responsibility for TBI surveillance for all the services
www.dvbic.org
Center for Deployment Psychology (CDP)
• Deployment-related behavioral health training for military and civilian mental health professionals
• Research deployment-related needs of service members and families
• Efforts underway to extend training to primary care and other specialties
www.deploymentpsych.org
Deployment Health Clinical Center (DHCC)
• Consultation & assessment of post-deployment physical symptoms
• Three-week Specializes Care Programs for traumatic stress spectrum conditions
• Deployment healthcare education using web-based and traditional strategies
• Deployment healthcare program implementation & evaluation
• Clinical & deployment health services research
www.pdhealth.mil
Center for the Study of Traumatic Stress (CSTS)
• Research, education, consultation and training on PH and TBI
• Knowledge, leadership and applications for preparing for, responding to and recovering from the consequences of disaster and trauma
• Integrates science, clinical care, community needs and the health of the nation
www.centerforthestudyoftraumaticstress.org
Telehealth & Technology Center (T2)
• Leverage telehealth and other technologies to screen, educate, prevent, assess and treat
• Research, evaluate, and develop new tech applications
• Deploy technologies and provide analyses to support key DoD and Service programs including suicide tracking, annual and deployment health screenings
www.dcoe.health.mil
National Intrepid Center of Excellence (NICoE)
• Opens Fall 2009
• Clinical arm of DCoE
• PH and TBI intensive outpatient evaluation and diagnosis, initial treatment plans, family-centered education, telehealth and long-term follow-up
• Research teams/consortia (intramural and extramural)
www.dcoe.health.mil

National Intrepid Center of Excellence (NICoE)

- Leverages the Defense Centers of Excellence for PH and TBI (DCoE) to help warriors with complex psychological health and traumatic brain injury concerns

- Provides state of the art holistic diagnostic assessment and creation of treatment plans, tele-health consultation and long term follow-up

- Conducts clinical research, tests new evaluation and treatment tools, establishes uniform outcome measures and participates in the development of evidence-based medicine

- Provides innovative training and education to patients, families, healthcare providers and the general public

NICoE Relationships

NICoE Vision

- **Vision:** The NICoE inspires Hope, Healing, Discovery, and Learning.

- **Mission:** To be the leader in advancing psychological health and traumatic brain injury diagnosis, treatment, research and education.

NICoE Network

NICoE Network Sites are a virtual extension of the NICoE connected to an MTF, VA or civilian healthcare center engaged in the care of Wounded Warriors with PH and TBI issues enabling sharing of health data, clinical diagnostic and treatment protocols, outcome assessment measures and best practices

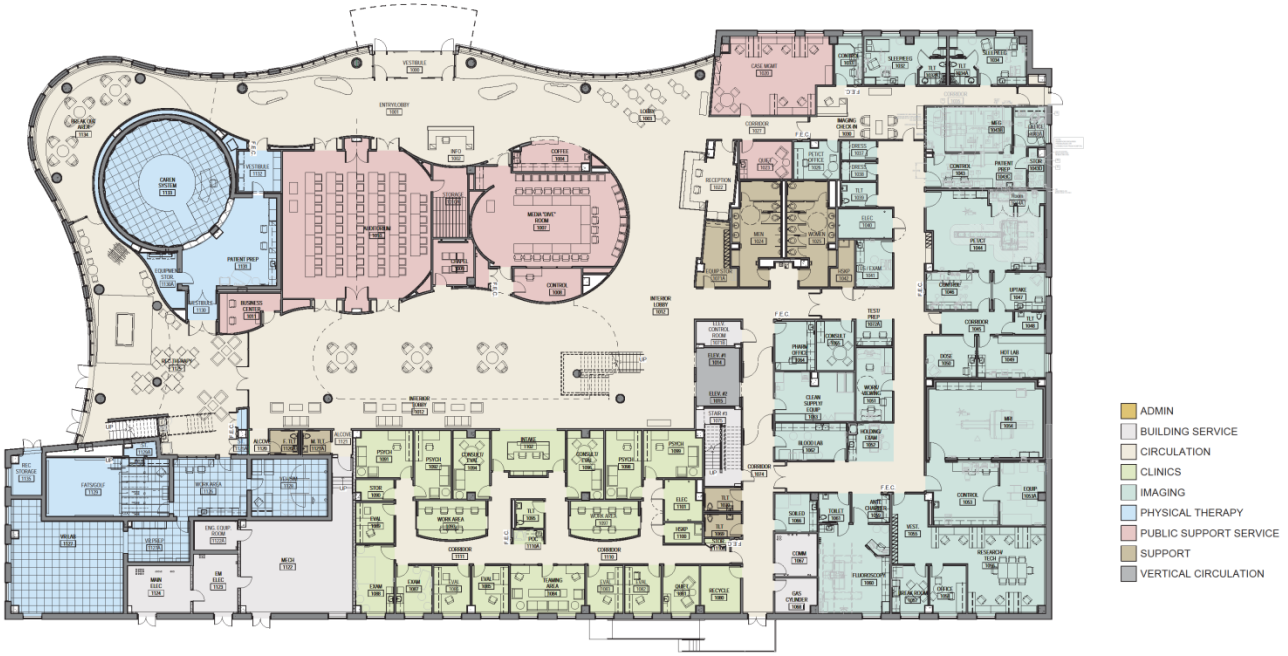
- Tentative capabilities will include:
  - Collaboration with Telehealth and Technology (T2)
  - Liaison with existing personnel and work space
    - Free standing
    - Incorporated in another facility
  - Key to operationalizing and maintaining a “string” attached to post-NICoE patients

Evaluations

Evaluations will include:

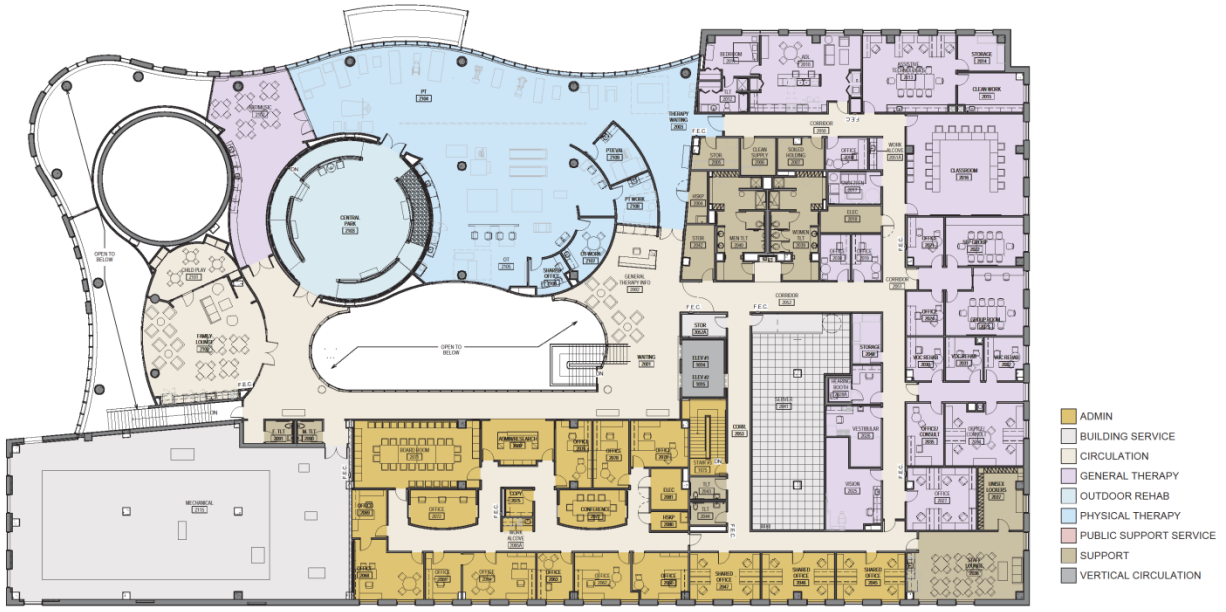
- Physical / Neurological Examination
- Psychiatric / Psychological Health Evaluation
- Physical Rehabilitation Evaluation
- Vestibular / Audiology / Speech Assessment
- Neuro-Ophthalmology Testing
- Electrophysiology (including Sleep Evaluation)
- Family Evaluations
- Vocational Testing/Screening
- Neuroimaging Evaluation
- Complimentary and Alternative Medicine (CAM)
- Assistive Technology Lab
- Virtual Reality Diagnostic Assessment
- Nutritional Evaluation
- Clinical Pharmacy Evaluation
- Spirituality Assessment
- Substance Use Assessment

NICoE First Floor Plan



FIRST FLOOR PLAN

NICoE Second Floor Plan



SECOND FLOOR PLAN

NATIONAL INTREPID CENTER OF EXCELLENCE

INTREPID FALLEN HEROES FUNDS

SMITHGROUP

NICoE Populations

I. Evaluation and Treatment

- Evaluate ~ 20 Warriors and families every two weeks
- Provide individualized treatment planning
- Provide specialized rehab / therapy
- Leverage novel approaches for diagnosis and treatment
- Provide lifelong follow up

II. Research

- Leverage advanced technical and clinical resources via a collaborative research hub
- Design and implement next generation pilot studies promoting medical science in mTBI and PH prevention, care and treatment planning

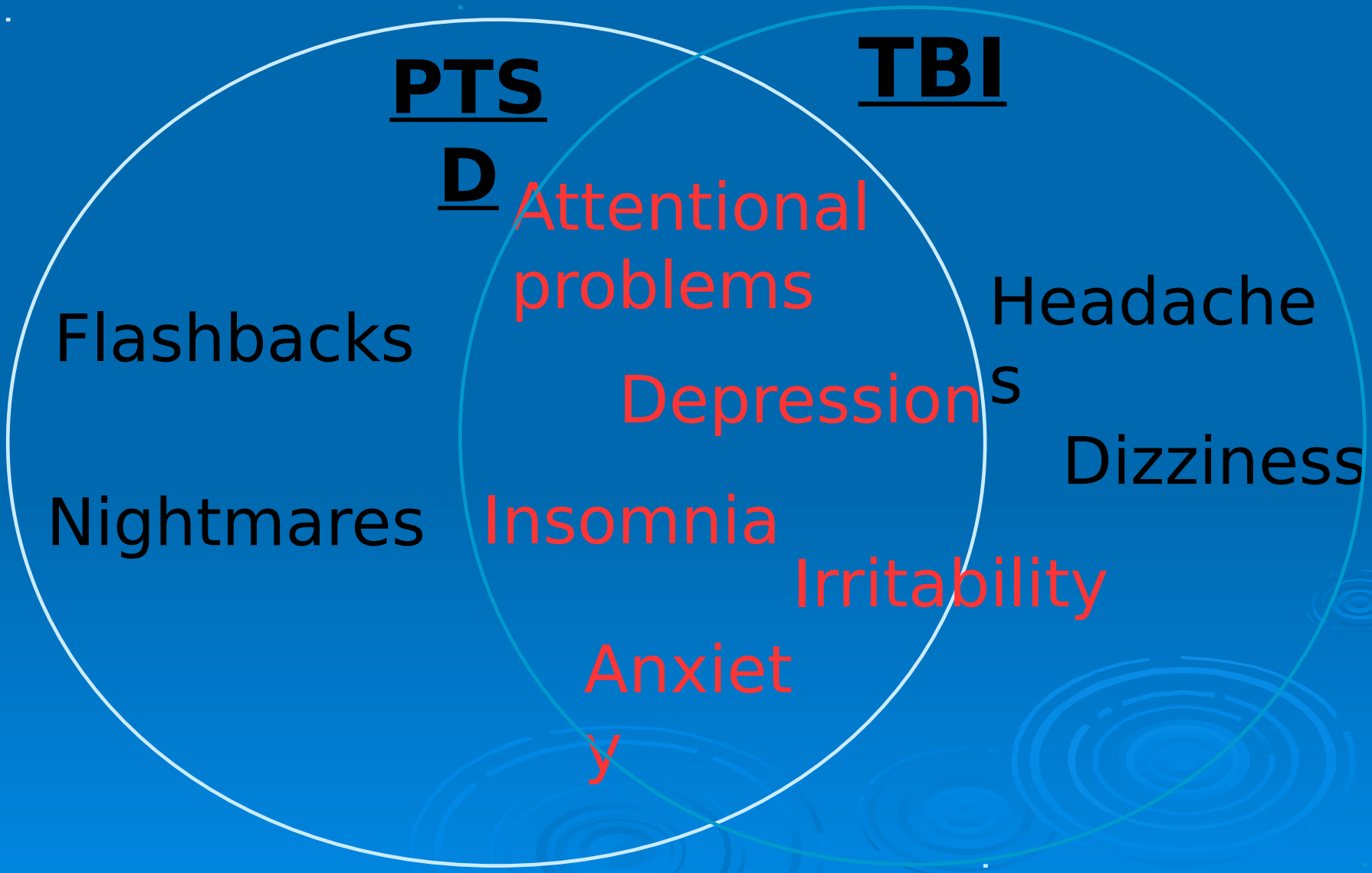
III. Training and Education

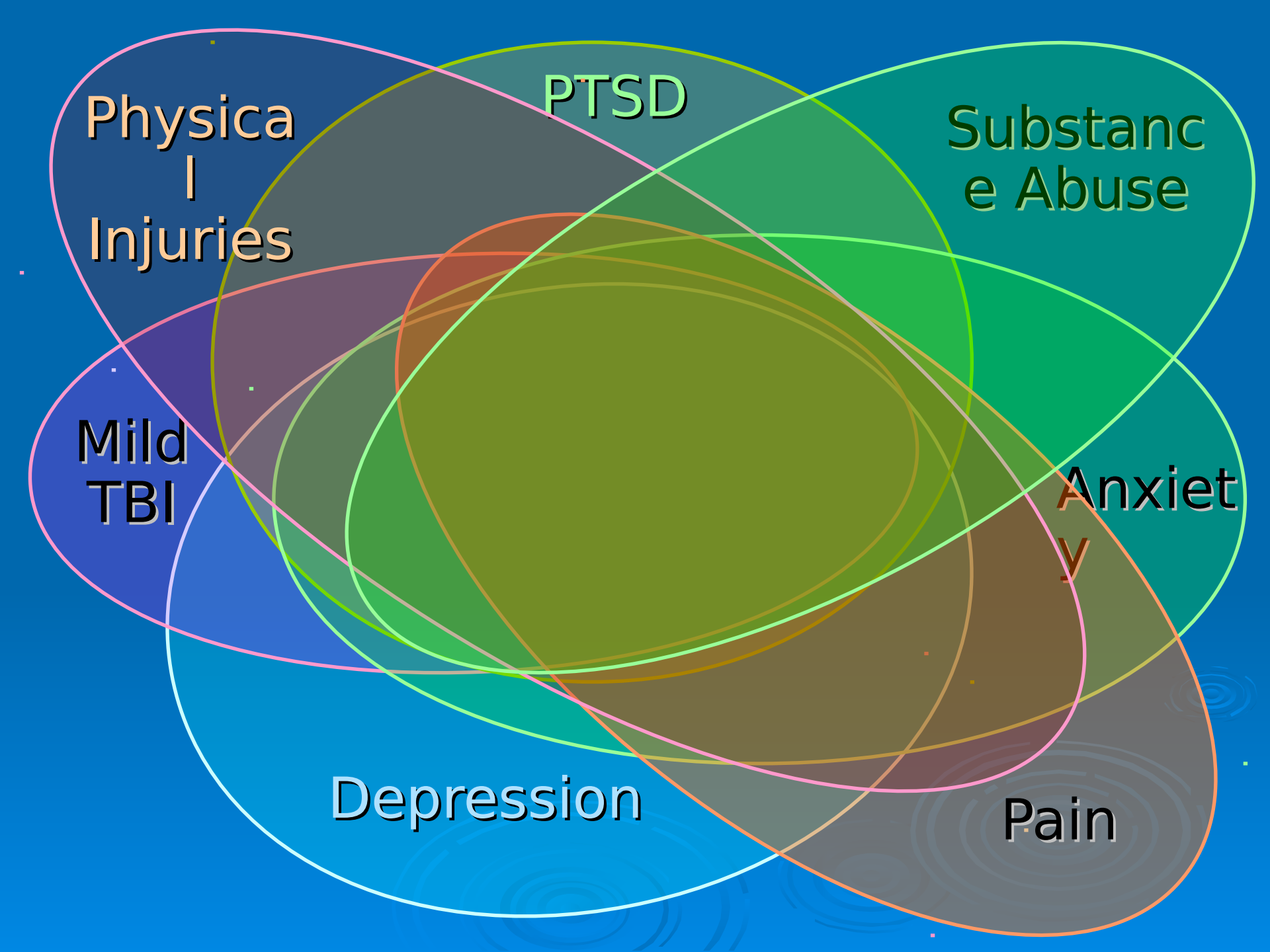
- Serve as a center of learning for clinicians, researchers, service members, families, and the public
- Develop and host collaborative training and education programs within a premier learning environment
- Serve as a platform for dissemination of novel approaches

IV. External Stakeholder Relations

- Showcase unique capabilities and model of care to interested parties (e.g. tours, VIP visits, collaborative relationships)
- Host arts and entertainment performances
- National and international consultation for CoE development

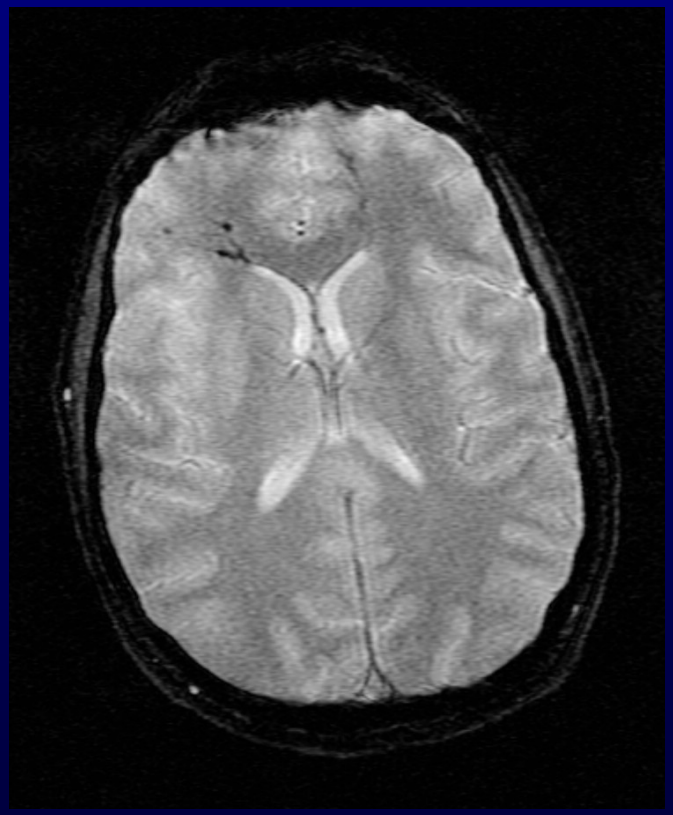
Potential Clinical Presentation




Physical Injuries
PTSD
Substance Abuse
Mild TBI
Anxiety
Depression
Pain

Before 1yr progress After

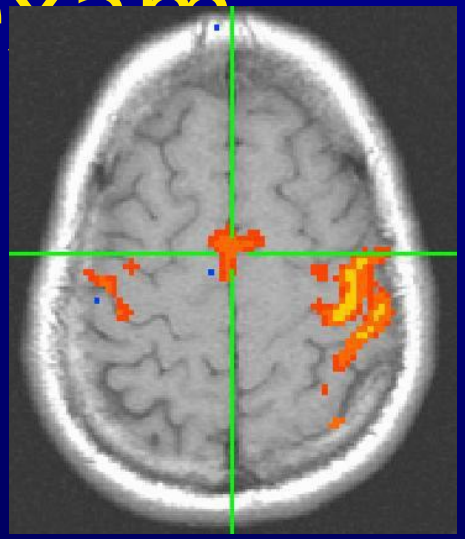
GRE

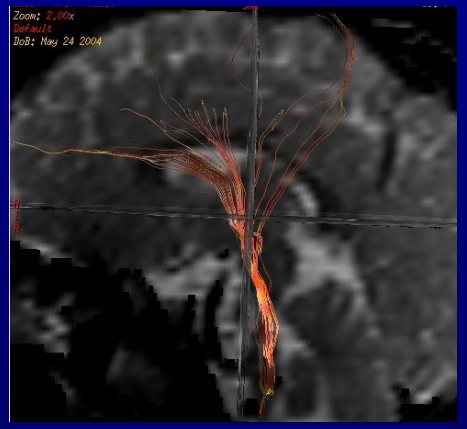


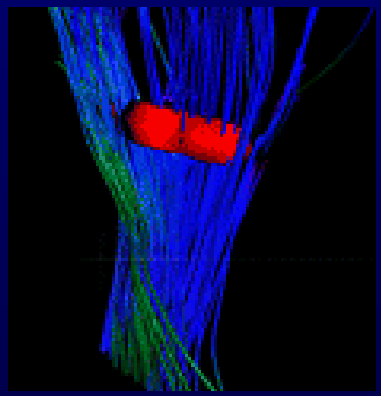
SWI

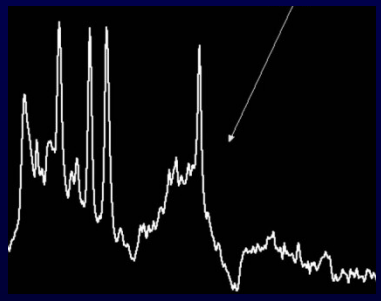
Neuro-comprehensive MRI exam

- 90 minutes
- Brain Structure
- Brain Lesions
- Brain Function
- Brain Chemistry
- White matter ultrastructure
  - Axonal fiber tracks
- Brain Perfusion



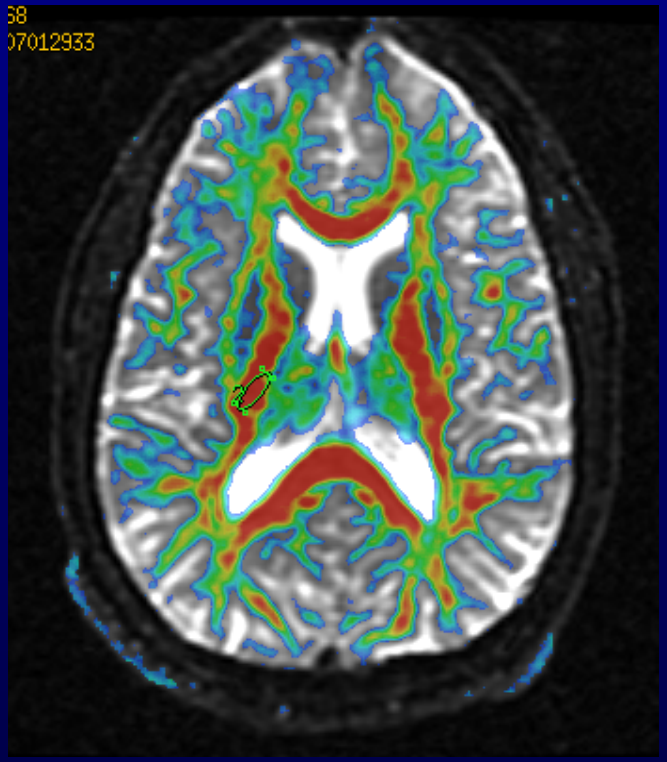




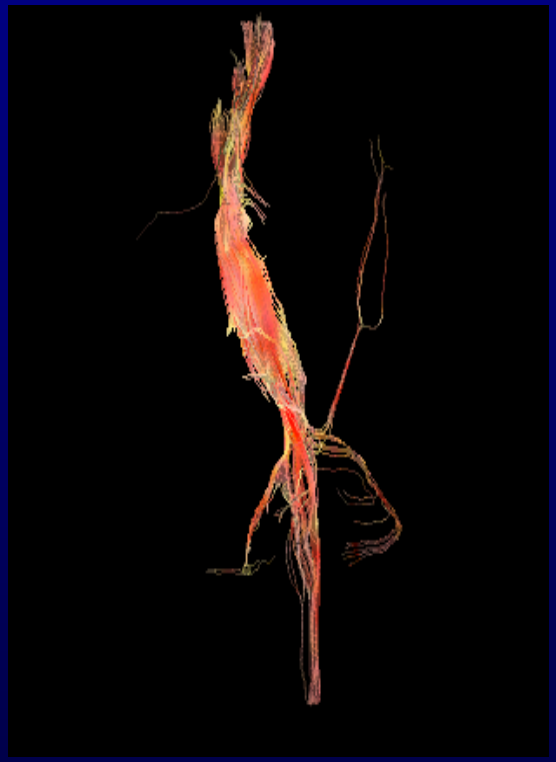


Internal Capsule

Fractional Anisotropy Map



Fiber Tractography

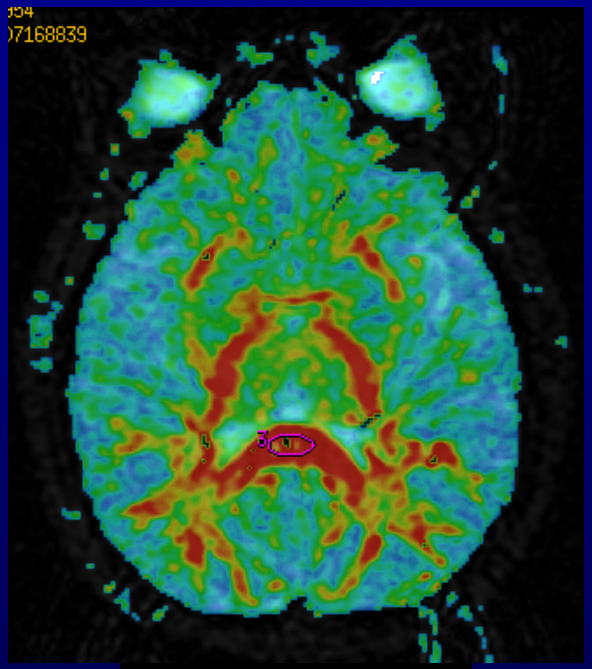


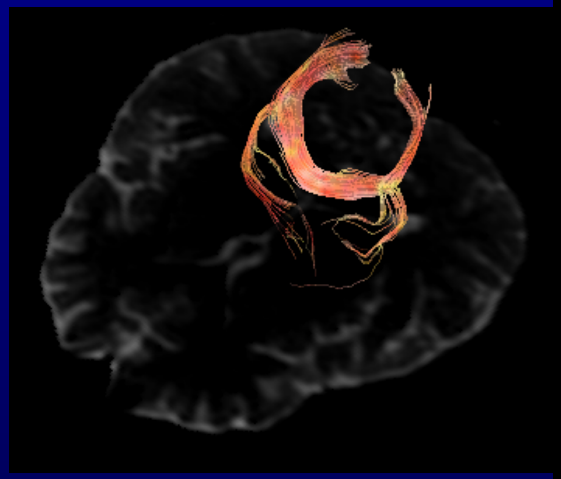
Motor/Sensory fibers of the Brain

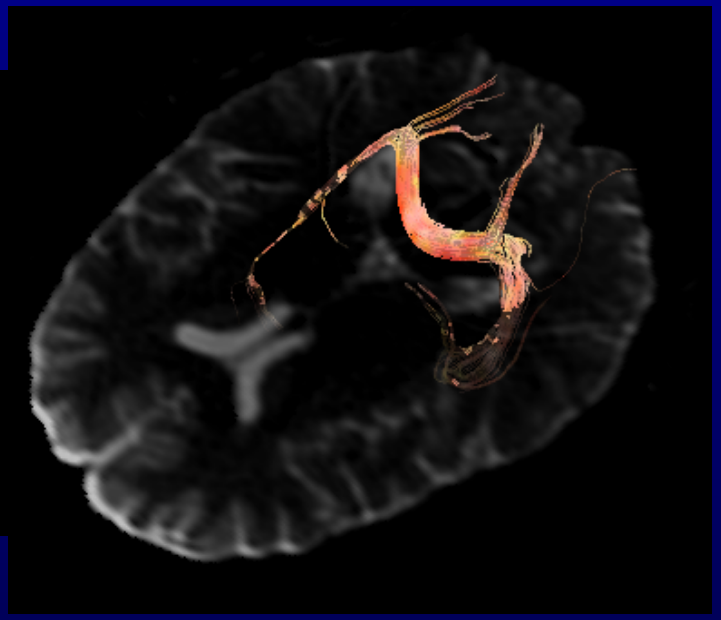
Action fibers of the brain- Get up off the couch

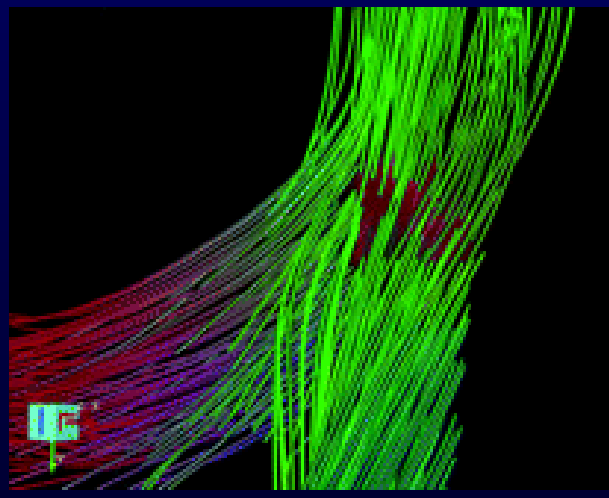
Sensory- position of limbs, touch, temp

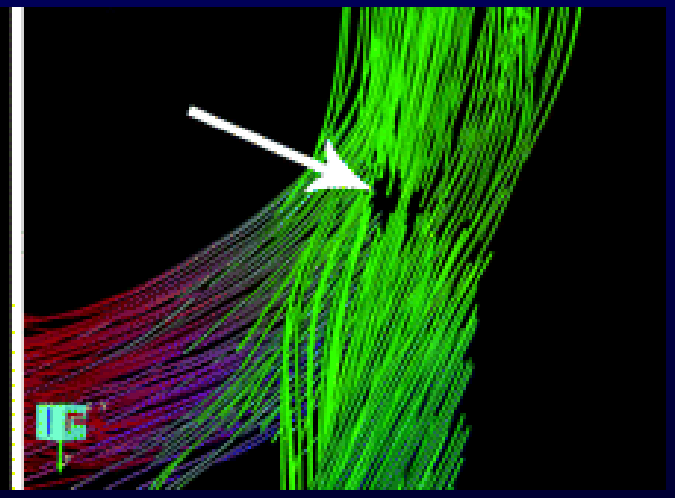
Corpus Callosum



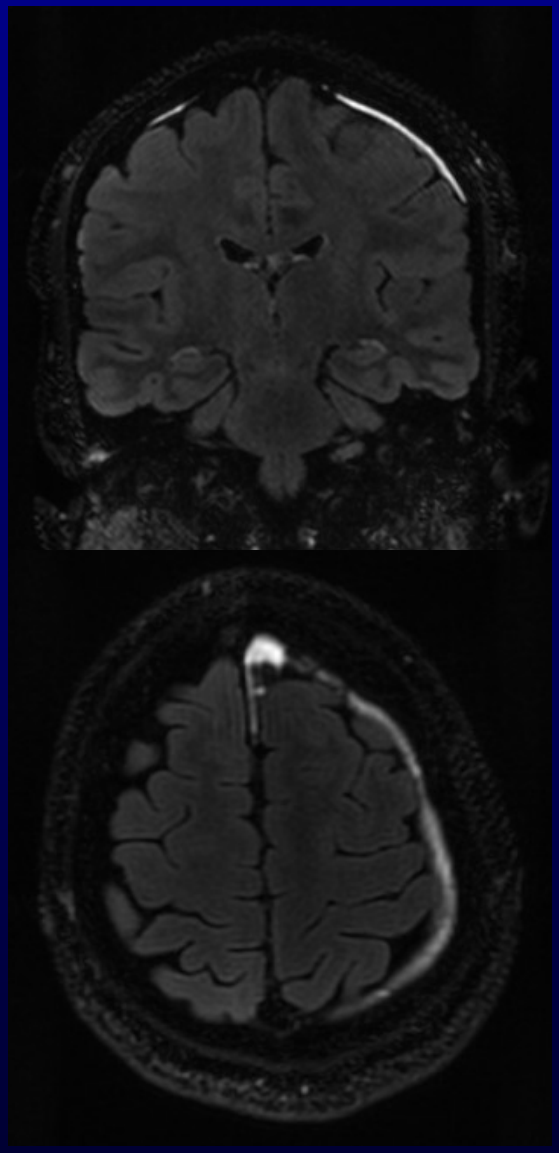


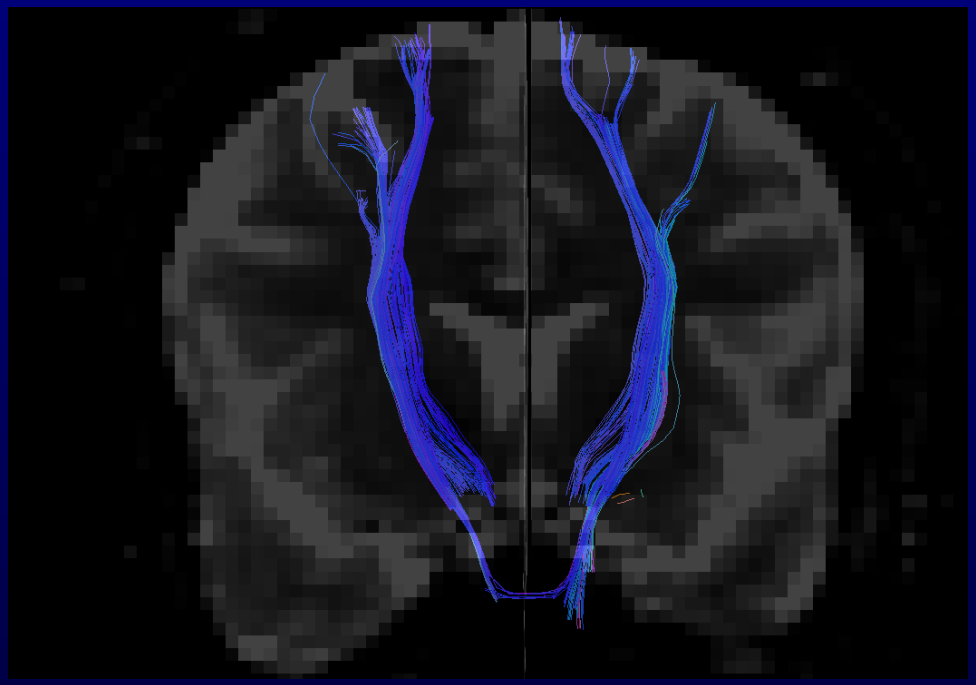


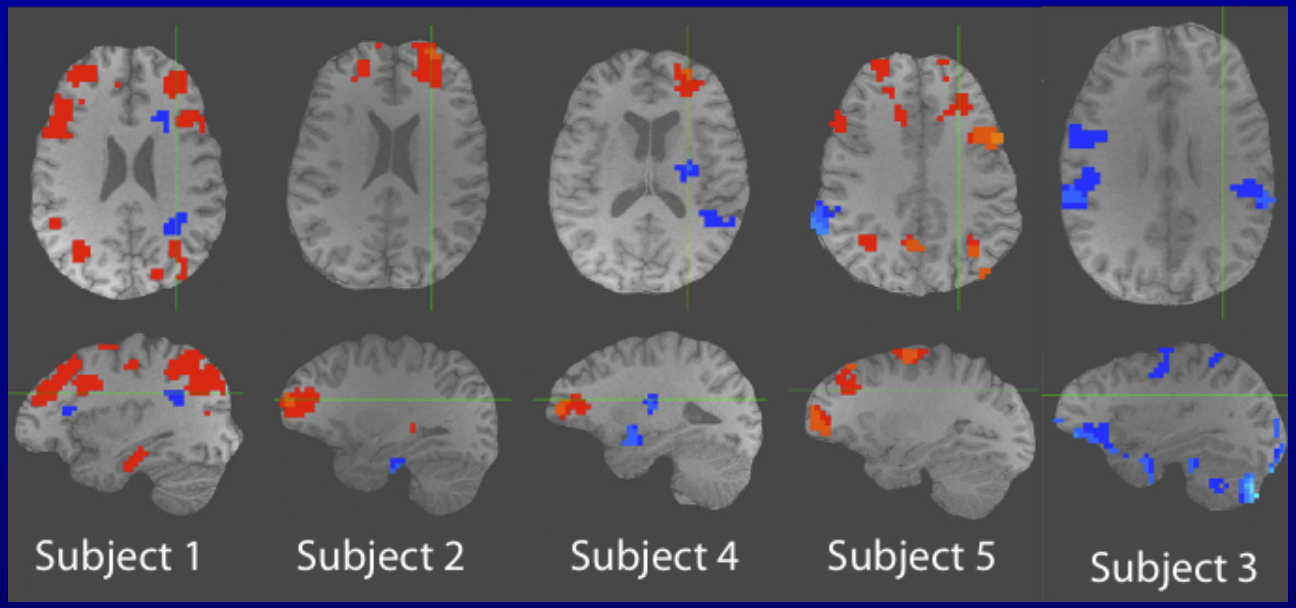




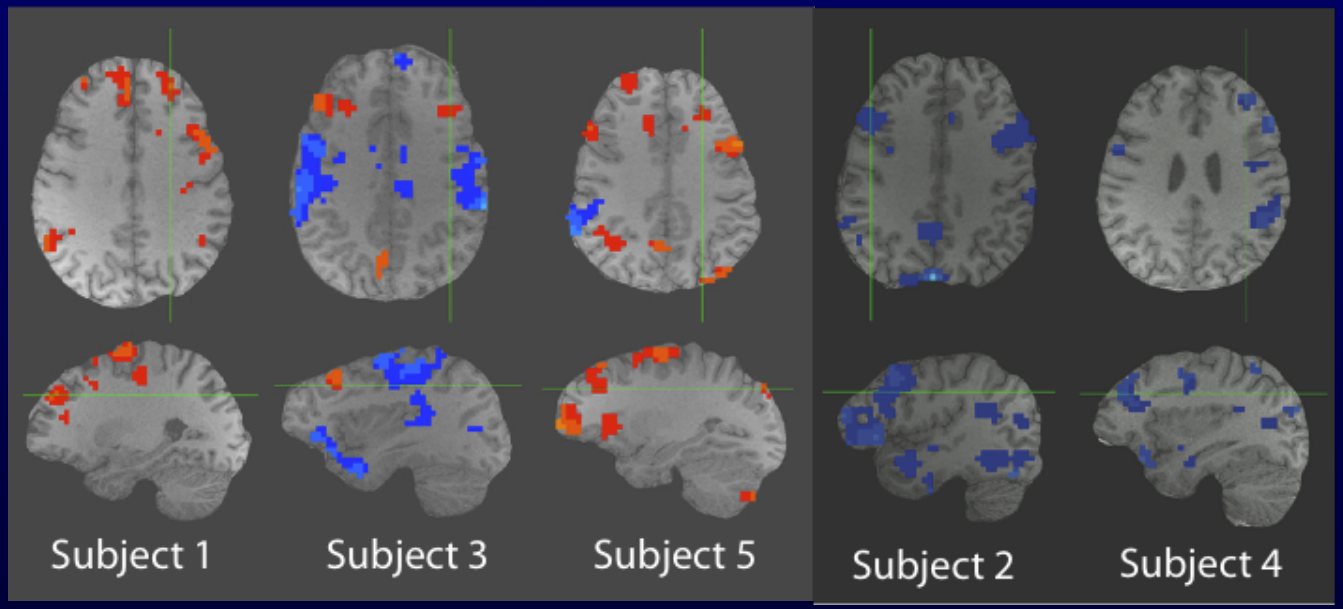
Mod TBI with Left Subdural





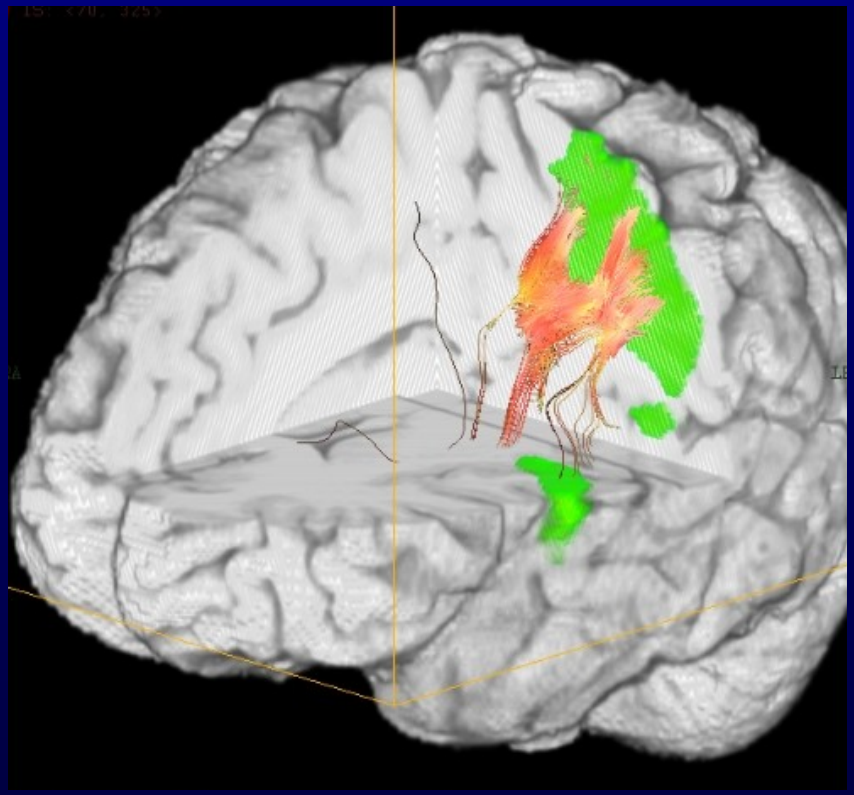


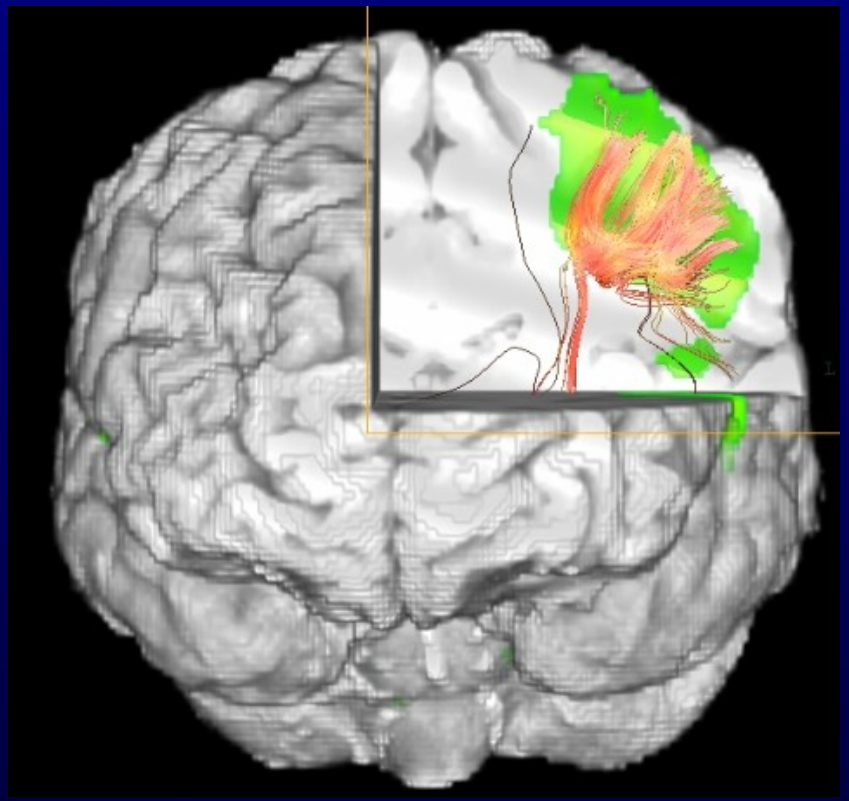
2-back vs. 1-back Contrast



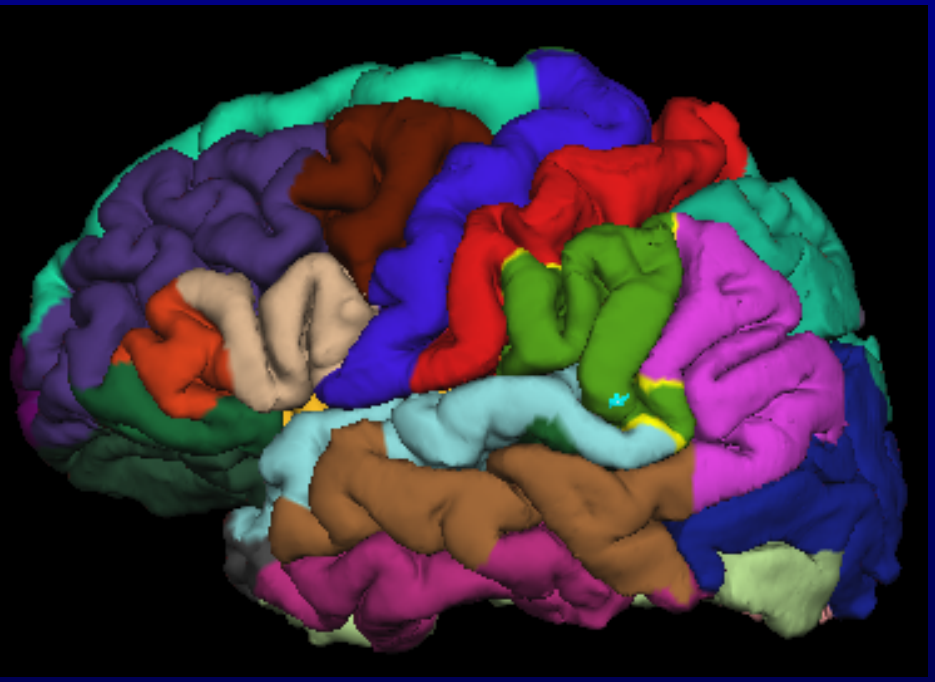
3-back vs. 1-back Contrast

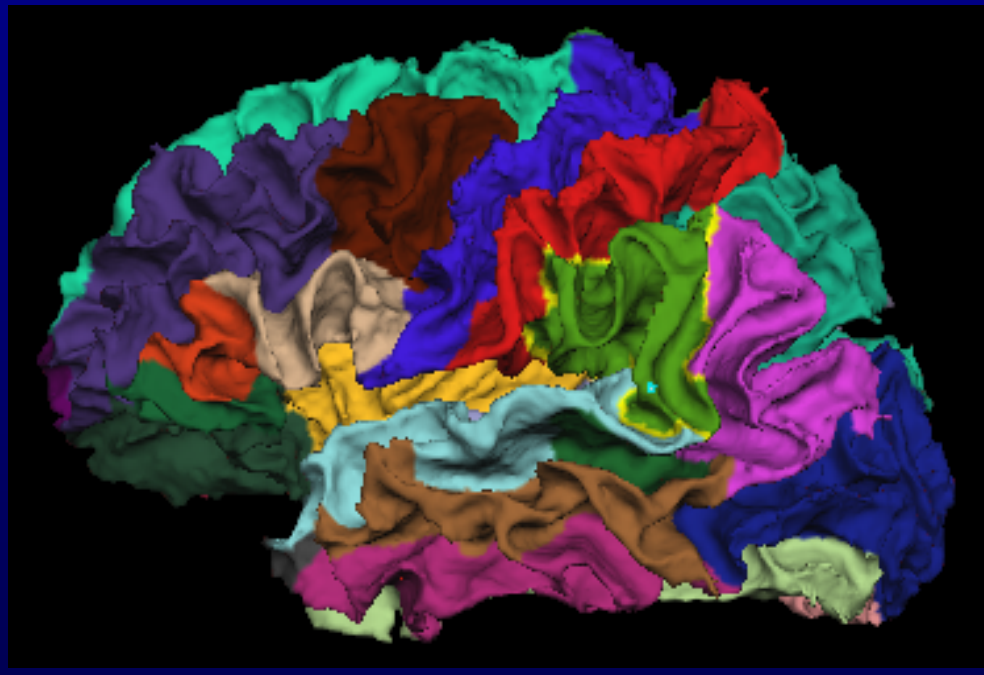
Functional Connectivity





Segmentation



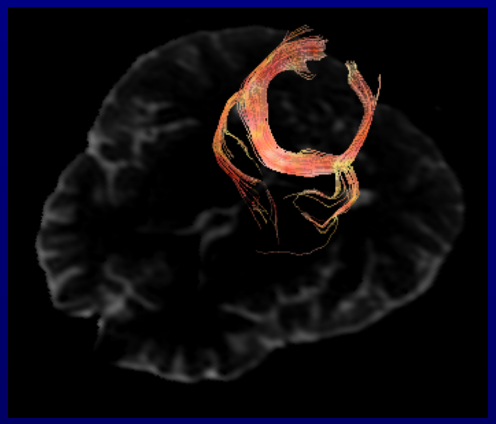


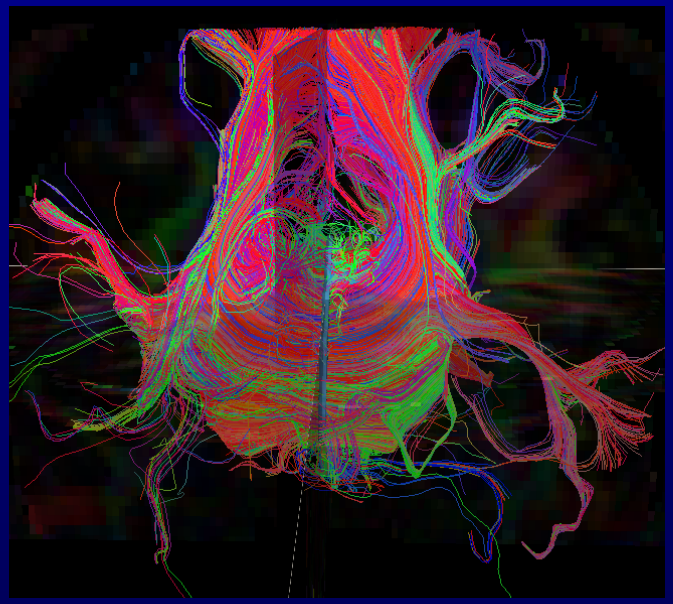
Grey Matter White Matter

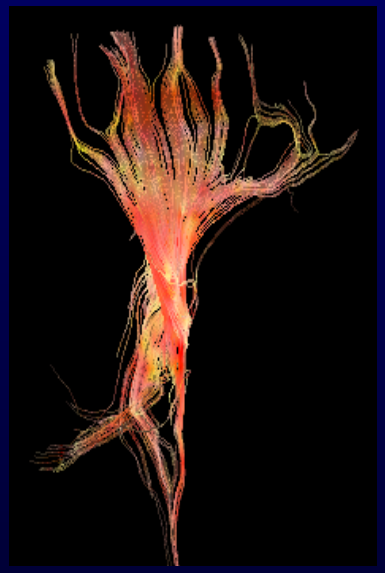
Before

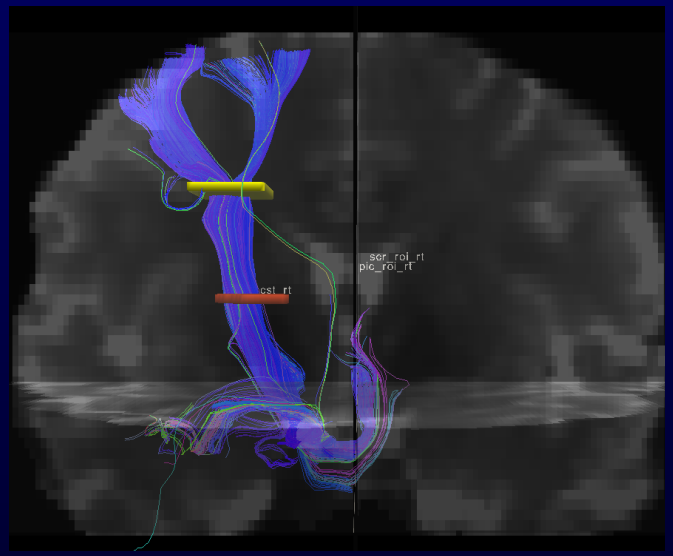
1yr progress

After

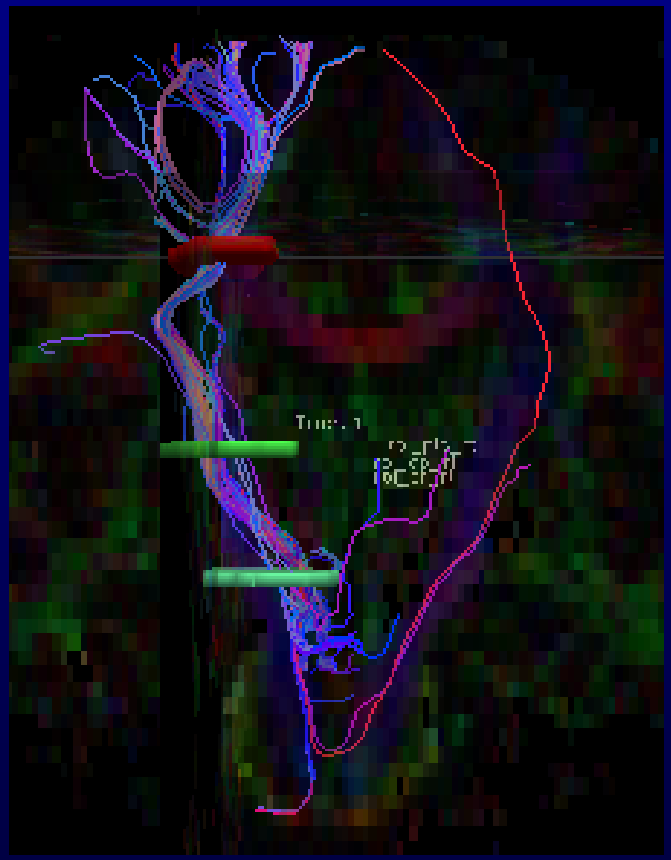




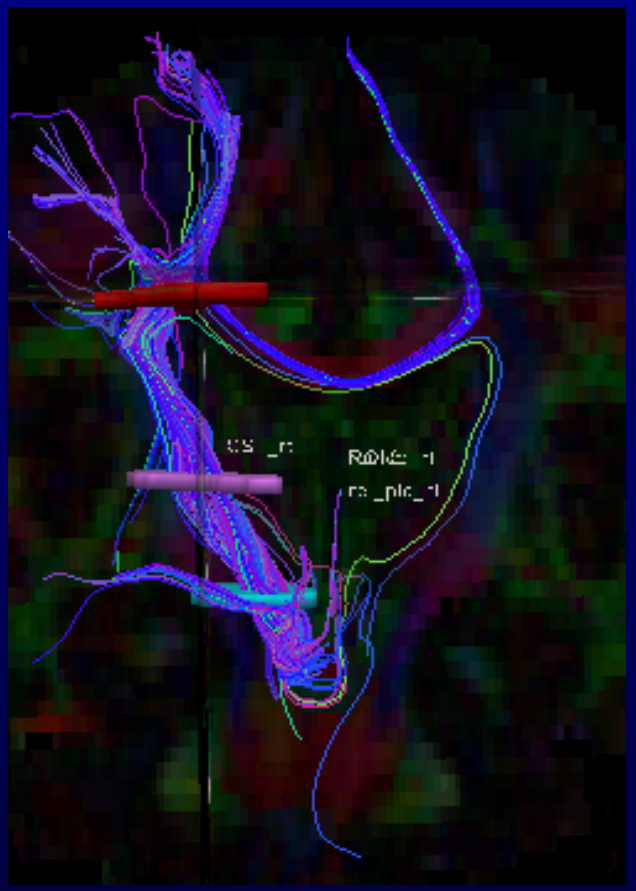




Initial DTI Results: Tractography

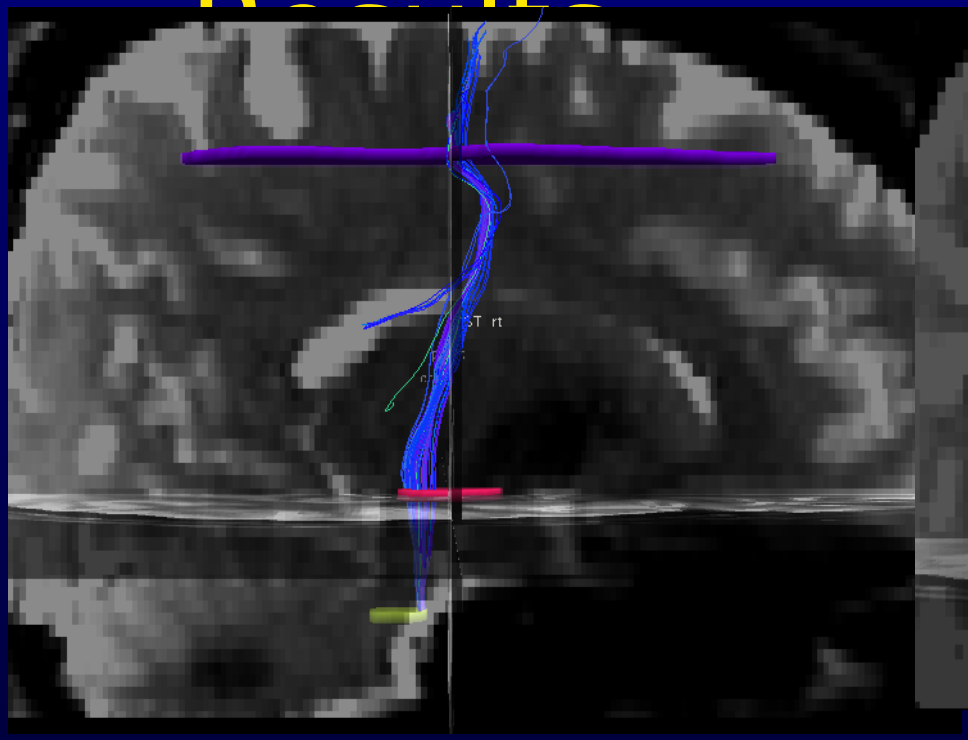


32 directions

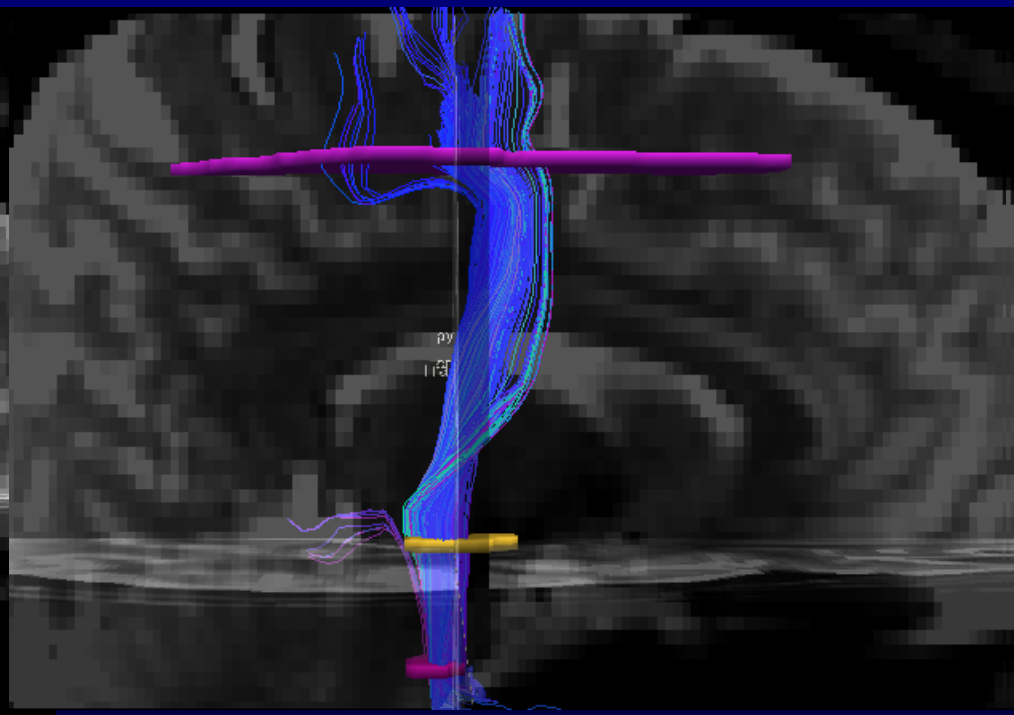


55 directions

Initial DTI Results



Non-gated (standard)



Cardiac signal gated

Ribbon Cutting Ceremony
24 June 2010

DEFENSE CENTERS
OF EXCELLENCE
For Psychological Health
& Traumatic Brain Injury

Hyperbaric O2 Study

- Sites for HBO2 research protocol
  - Fort Carson (Outcome Assessment Center)
  - Fort Hood
  - Camp Lejeune
  - Camp Pendleton
- Fort Carson OAC – office suite off-post in Colorado Springs where neurocognitive, balance, hearing, and neurophysiologic testing will be conducted on all subjects pre-HBO2 and at 2 post-HBO2 time points
- NICoE will serve as the data repository